AF

TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No. ITL.0227US

In Re Application Of: **Ronald K. Minemier**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/345,669	June 30, 1999	Nhan T. Tran	21906	2615	1490

Invention: **Sensing with Defective Cell Detection**

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on **April 19, 2006**

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Dated: **May 22, 2006**

Timothy N. Trop, Reg. No. 28,994
TROP, PRUNER & HU, P.C.
8554 Katy Freeway, Suite 100
Houston, TX 77024
713/468-8880 [Phone]
713/468-8883 [Fax]

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Signature of Person Mailing Correspondence

Nancy Meshkoff

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant:	Ronald K. Minemier	Art Unit:	2615
Serial No.:	09/345,669	Examiner:	Nhan T. Tran
Filed:	June 30, 1999	Atty Docket:	ITL.0227US (P7137)
For:	Sensing with Defective Cell Detection	Assignee:	Intel Corporation

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APPEAL BRIEF

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Nancy Meshkoff

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REAL PARTY IN INTEREST

The real party in interest is the assignee Intel Corporation.

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF CLAIMS

Claims 1-6 (Rejected).

Claim 7 (Canceled).

Claims 8-13 (Rejected).

Claim 14 (Canceled).

Claims 15-17 (Rejected).

Claim 18 (Canceled).

Claims 19-30 (Rejected).

Claims 1-6, 8-13, 15-17, and 19-30 are rejected and are the subject of this Appeal Brief.

STATUS OF AMENDMENTS

All amendments have been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

Pursuant to an embodiment of the present invention, a spatial defect may arise when it is determined that two defective pixels are too close in proximity. Spatial defects may be determined during the frame read out process. Therefore, it is easy to determine whether certain spatial characteristics exist—once a bad pixel is identified, all that is needed is to determine whether the next bad pixel is within a predefined (or programmable, in some cases) offset from the previous bad pixel.

In the following discussion, the independent claims are read on one of many possible embodiments without limiting the claims:

1. A method of detecting defective sensing element arrays comprising:

reading out a frame of sensing element data from an array (Fig. 6, 608, specification at page 10, lines 7-9); and

determining a number of spatial defects based on a number of pairs of adjacent defective pixels that are closer than a given offset by analyzing said data during the frame read out (Fig. 6, 612, specification at page 10, lines 14-18; Fig. 8, 806, 808, 810, page 13, lines 8-25).

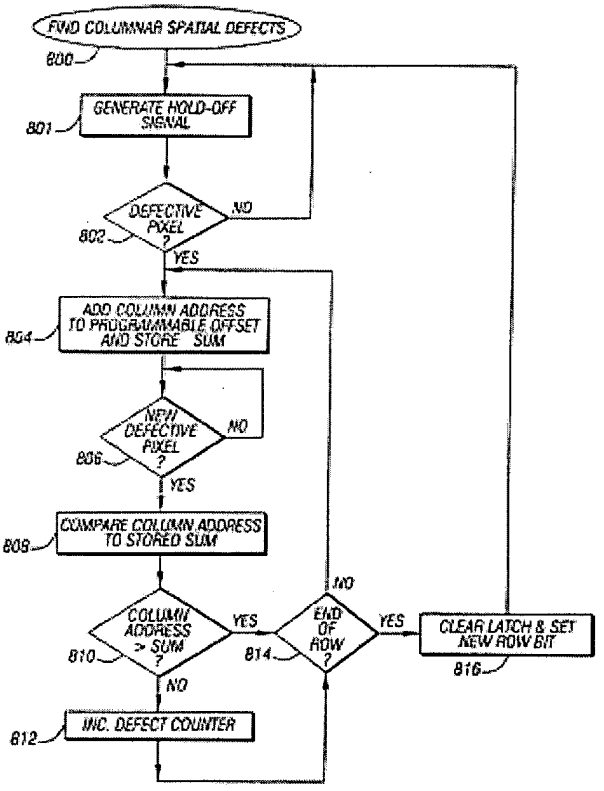

FIG. 8

15. An article comprising a medium that stores instructions that cause a processor-based system to:

programmably set high and low limits for pixel intensity values (Fig. 7, 700-716, specification at page 12, lines 1-15); and

determine during the read out of pixel intensity values from an array, a number of spatial defects involving a number of pairs of adjacent defective pixels that are closer than a predefined offset by analyzing pixel data from said array in view of said high and low limits for pixel intensity values (Fig. 6, 612, specification at page 10, lines 14-18; Fig. 8, 806, 808, 810, page 13, lines 8-25).

22. A sensing device comprising:

a plurality of sensing elements (Fig. 3, 302) capable of indicating data to be captured (specification at page 6, lines 10-14); and

a circuit in said device to determine a number of spatial defects based on pairs of adjacent defective pixels that are closer than an offset by analyzing the data as it is read out from said elements (Fig. 2, 200; Fig. 6, 612, specification at page 10, lines 14-18; Fig. 8, 806, 808, 810, page 13, lines 8-25).

At this point, no issue has been raised that would suggest that the words in the claims have any meaning other than their ordinary meanings. Nothing in this section should be taken as an indication that any claim term has a meaning other than its ordinary meaning.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. **Are claims 1-6, 8-13, 15-17, and 19-30 unpatentable over Therrien in view of Fossum?**

ARGUMENT

A. Are claims 1-6, 8-13, 15-17, and 19-30 unpatentable over Therrien in view of Fossum?

Independent claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Therrien in view of Fossum.

Pursuant to an embodiment of the present invention, a spatial defect may arise when it is determined that two defective pixels are too close in proximity. Spatial defects may be determined during the frame read out process. Therefore, it is easy to determine whether certain spatial characteristics exist—once a bad pixel is identified, all that is needed is to determine whether the next bad pixel is within a predefined (or programmable, in some cases) offset from the previous bad pixel.

The examiner concedes that the Therrien reference does not disclose determining a number of spatial defects involving a pair of adjacent defective pixels. For the same reason, it is respectfully submitted that the Therrien reference does not determine a number of spatial defects based on the number of pairs of adjacent defective pixels that are closer than a given offset. The Fossom reference does not cure the deficiency of Therrien.

For example, the alleged spatial defects in Fossom are defective pixel areas. Fossom identifies dead pixel areas as "*a group of pixels that includes* pixel elements that are in some way defective." Column 1, lines 65-67 (emphasis added). Furthermore, *dead pixel areas include* a single dead pixel or *a contiguous group of bad pixels*. Column 3, lines 1-23 (emphasis added). Therefore, Fossom's criteria for designating a group of pixels as a dead pixel area is (1) that the group of pixels *include* pixel elements that are in some way defective and (2) that the area *include* a contiguous group of bad pixels. Because Fossom does not specifically limit a dead pixel area to only dead pixels, it is respectfully submitted that Fossom's dead pixel areas may also include pixels that are not bad, but nevertheless fall within the identified group. Thus, when Fossom "investigates" bad pixels to determine a type of dead pixel area, the identified area includes the contiguous defective pixels and any other pixels contained within the group such as an entire row, an entire column, or a neighborhood. *Id.* Because Fossom's "investigation" of bad pixels merely identifies bad pixel areas according to a type of group (e.g., column, row,

neighborhood) his "investigation" has nothing to do with determining a number of spatial defects based on the number of pairs of adjacent defective pixels that are closer than a given offset. In other words, Fossom's groupings are dependent upon the type of area and not the actual number of defective pixels pairs within that area. Because neither reference alone or in combination discloses or suggests all of the limitations of amended claim 1, claim 1 and claims dependent thereon are patentably distinguished over the cited art.

For at least the same reasons, independent claims 15 and 22, and their respective dependent claims are also patentable over the cited references.

Applicant respectfully requests that each of the final rejections be reversed and that the claims subject to this Appeal be allowed to issue.

Respectfully submitted,

Date: May 22, 2006

Timothy N. Trop, Reg. No. 28,994
TROP, PRUNER & HU, P.C.
8554 Katy Freeway, Ste. 100
Houston, TX 77024
713/468-8880 [Phone]
713/468-8883 [Fax]

Attorneys for Intel Corporation

CLAIMS APPENDIX

The claims on appeal are:

1. A method of detecting defective sensing element arrays comprising:

reading out a frame of sensing element data from an array; and

determining a number of spatial defects based on a number of pairs of adjacent defective pixels that are closer than a given offset by analyzing said data during the frame read out.

2. The method of claim 1 wherein said sensing element array is an imaging array, said method further including programmably setting high and low limits for pixel intensity values.

3. The method of claim 2 further including programmably setting said high and low limits based on illumination conditions.

4. The method of claim 2 further including comparing the pixel intensity values measured by said array to said high and low limits.

5. The method of claim 4 further including indicating a defect when a pixel's intensity value is higher than said high limit or lower than said low limit.

6. The method of claim 1 wherein said sensing element array is an imaging array, said method further including identifying in the focal plane of the pixel array, which pixels are defective.

8. The method of claim 1 including determining whether two defective pixels are closer together than a programmable offset.

9. The method of claim 8 further including adding a column or row address where a defect exists to a programmable offset and storing said address with said offset.

10. The method of claim 9 further including comparing the address of a defective pixel to said stored address plus a programmable offset.

11. The method of claim 1 further including identifying the number of spatial defects by column and row by analyzing, in said array, said data.

12. The method of claim 1 further including storing information about the location of defective elements in a memory in said array.

13. The method of claim 12 wherein each element in the array has a corresponding location in the memory and setting a defect exists bit at each memory location where a defective element has been identified.

15. An article comprising a medium that stores instructions that cause a processor-based system to:

programmably set high and low limits for pixel intensity values; and

determine during the read out of pixel intensity values from an array, a number of spatial defects involving a number of pairs of adjacent defective pixels that are closer than a predefined offset by analyzing pixel data from said array in view of said high and low limits for pixel intensity values.

16. The article of claim 15 further storing instructions that cause a processor-based system to programmably set said high and low limits based on illumination conditions.

17. The article of claim 15 further storing instructions that cause a processor-based system to compare the pixel intensity values measured by said array to said high and low limits.

19. The article of claim 15 further storing instructions that cause a processor-based system to determine whether two defective pixels are closer than a programmable offset.

20. The article of claim 15 further storing instructions that cause a processor-based system to identify the number of spatial defects by column and row by analyzing said pixel data.

21. The article of claim 15 further storing instructions that cause a processor-based system to store information in a memory about the location of a defective pixel.

22. A sensing device comprising:

a plurality of sensing elements capable of indicating data to be captured; and

a circuit in said device to determine a number of spatial defects based on pairs of adjacent defective pixels that are closer than an offset by analyzing the data as it is read out from said elements.

23. The device of claim 22 wherein said device is an imaging device and said elements are pixels, said device including storage adapted to enable high and low limits for pixel intensity values to be set programmably.

24. The device of claim 22 further including a circuit adapted to determine the number of spatial defects by analyzing data as it is read out from said elements.

25. The device of claim 24 further including a window circuit that is adapted to add a column or row address where a defect exists to a programmable offset and to store said address with said offset.

26. The device of claim 25 further including a comparator adapted to compare the address of a defective element to the stored address plus the programmable offset.

27. The device of claim 22 further including a memory adapted to store information about the location of defective elements.

28. The device of claim 27 wherein said memory includes a location corresponding to each of a plurality of elements.

29. The device of claim 22 wherein said circuit and said elements are formed on the same die.

30. The device of claim 22 wherein said device is an imaging device and said elements are pixels, said circuit being formed on the imaging device's focal plane that includes said pixels.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.